Maintenance Schedule

Manufacturer recommendation

To make sure the NAD Eagle monitor remains in proper operational and functional order, a good maintenance schedule must be adhered to. The manufacturer's recommendation in this regard is as follows:

- **Inspection:** Operators should perform this prior to admitting each patient to the monitor. Service personnel should perform this prior to servicing the monitor.
- **General Cleaning:** Operators should perform this prior to admitting each patient to the monitor. Service personnel should perform this after servicing the monitor.
- **PMS Procedures:** These should be performed by qualified service personnel upon receipt of the equipment, every six months thereafter, and each time the monitor is serviced.

Manufacturer responsibility

Failure on the part of all responsible individuals, hospitals or institutions, employing the use of this monitor, to implement the recommended maintenance schedule may cause equipment failure and potential operator and patient health hazards. The manufacturer does not in any manner, unless an Equipment Maintenance Agreement exists, assume the responsibility for performing the recommended maintenance schedule. The sole responsibility rests with all individuals, hospitals, or institutions utilizing the monitor.

Visual Inspection

Inspecting the monitor

The monitor should be carefully inspected prior to each patient being admitted to the monitoring system. Follow these guidelines when inspecting the equipment:

- Carefully inspect the monitor for obvious physical damage to the outer case, display screen and controls. Do not use the monitor if physical damage is determined. Refer damaged equipment to qualified service personnel for repair before using it again on a patient.
- Inspect all external connectors, front and rear, for degraded pins, prongs and connector housings. Refer damaged equipment to qualified service personnel for repair before using it again on a patient.
- Inspect all cable insulation, cable strain-reliefs and cable connectors for damage, cracks or degradation. Refer damaged equipment to qualified service personnel for repair before using it again on a patient.

Cleaning the Monitor

Cleaning the display

To clean the display on the monitor, use a soft, clean, lint-free cloth dampened with a glass cleaner similar to Windex, or a 1:1 mixture of isopropyl alcohol and water.

WARNING: Do not spray glass cleaner or general cleaning solutions directly onto the display. Do not use hospital disinfectants, like Cidex, on the display.

Monochrome displays

The *monochrome* monitors use a special filter (circular-polarized filter with anti-reflective coating) for the display. This type of filter increases the display contrast while, at the same time, reducing glare from ambient light sources. Upon close inspection of this filter lens while the display is turned off, milky-white streaks may be noticed. These streaks do not indicate that the display needs to be cleaned. This phenomenon is inherent of displays incorporating this type of display filter technology.

Cleaning the external surfaces

Clean the external surfaces of the monitor before each time a patient is admitted to the system. The exterior surfaces may be cleaned with a lint-free cloth dampened with one of these approved solutions:

- ammonia (diluted),
- Cidex,
- mild soap (dissolved), or
- sodium hypochlorite bleach (diluted).

Manufacturer recommendation

The manufacturer recommends the following guidelines to avoid damaging the monitor:

- Dilute all cleaning solutions according to respective manufacturer recommendations.
- Use a clean, dry, lint-free cloth to wipe off excess cleaning solution after each application.
- Do not pour water or cleaning solutions directly onto the monitor. Do not allow fluids to run into crevices, connectors or cooling vents on the monitor.
- Never use these cleaning agents:
  - abrasive cleaners or solvents of any kind,
  - alcohol-based cleaning agents,
  - wax containing a cleaning substance,
  - acetone, or
  - betadine.

CAUTION: Follow these cleaning instructions exactly. Failure to follow the instructions may melt, distort, or dull the finish of the case, blur lettering on the labels, or cause equipment failures.

PMS Procedure

About the PMS procedure

The following pages contain the PMS procedures for the monitor. The purpose of the PMS procedure is to provide service personnel with a method that can be used to verify operational and functional performance of the monitor. Failure to attain any of the listed results indicates a potential malfunction of the monitor.

Perform the PMS procedure upon receipt of the monitor and every six months thereafter.

The PMS procedure is based on the assumption that the monitor being tested is used with known good cables and test equipment. It also requires that the user be somewhat familiar with the operation of all test equipment required for the PMS procedure. For more information concerning the operation of these components, refer to the respective operator manual.

Manufacturer recommended test equipment

The following table lists the manufacturer's recommended test equipment, adaptors, and cables necessary to successfully complete the PMS procedure. The PMS procedure was written for the test equipment in the following table. If test equipment other than the manufacturer's recommendation is used, it may be necessary to slightly modify some test steps.

PMS (continued)

Description	Part Number	Qty
Multifunction Micro-simulator	MARQ1	1
Cardiac output simulator II	900028-001	1
Patient cable, 5-leadwire, AHA	4113273	1
Leadwire Set, 5-Leadwire AHA	4113274	1
BP Adapter	700095-001	2
Temperature Adaptor	402015-004	1
TEMP-to-Simulator Cable	6770031	1
CO Adaptor	700092-001	1
Fluke Graphical Multimeter	Fluke	1
Fluke AC Adapter	Fluke	1
Leakage Tester 115V/60Hz	Biotek	1
Strip Chart Recorder	4113268	1
Recorder Cable (4 ft)	4113269	1
Chart Paper	4110335	1

NOTE: The test step numbers correspond to the PMS sheet (PN-4113370) and the future release of the service manual.

PMS (continued)

Monitor power-up tests

3.1.1. Turn the power switch on the monitor's rear panel to the off (0) position.

3.1.2. If the display is on, press the DISPLAY ON/OFF key to turn it off.

3.1.3. Connect a power cord between a properly wired wall receptacle and the monitor power connector.

3.1.4. Turn the power switch on the monitor's rear panel to the on (1) position.

3.1.5. Verify all of the front panel indicators illuminate for a second or two.

3.1.6. Verify the PWR-AC indicator and one of the BATT indicators stays illuminated.

- If the RDY indicator is on, continue with the tests.
- If the CHRGNG indicator is on, wait for the battery to fully charge and the RDY indicator to illuminate.
- If the FAIL indicator is on, replace the battery.

ECG tests

3.2.1. Set up the patient simulator as follows:

- Heart rate - 80 bpm,
- Heart rate amplitude - 1.0 mV,
- 5-lead ECG patient cable properly attached.

3.2.2. Attach the ECG patient cable and ECG leadwire set to the ECG/RESP connector on the monitor and the leadwire connectors on the top of the patient simulator.

3.2.3. Admit the patient simulator to the monitor. (You may need to select NEW CASE SETUP and NEW CASE to perform these steps. The monitor will reset.)

3.2.4. Observe the following:

- ECG lead II is displayed and is noise-free,
- Heart rate of 80 ± 1 bpm is displayed,
- With QRS tones enabled, an audible tone sounds with each R-Wave (QRS complex).

3.2.5. Verify all seven ECG leads are available for viewing and are noise-free.

3.2.6. Select DETECT PACE and set to PACE1.

PMS (continued)

3.2.7. Select the VP2 pacemaker pulse on the simulator.

3.2.8. Observe the following while viewing ECG leads II, III, aVR, aVF, and V:

- a **P** appears above the PVC count indicating pacemaker pulse detection is enabled, and
- the heart rate still reads 80 ± 1 bpm.

3.2.9. Disable pacemaker pulse detection on the monitor and return the simulator to these conditions:

- Heart rate - 80 bpm,
- Heart rate amplitude - 1.0 mV,
- 5-lead ECG patient cable properly attached.

3.2.10. Select ECG lead II for viewing in the top trace position on the monitor display.

3.2.11. Disconnect the RA leadwire from the patient simulator.

3.2.12. Observe following:

- a RA FAIL message appears on the display, and
- lead III automatically displays in place of lead II in the top trace position.

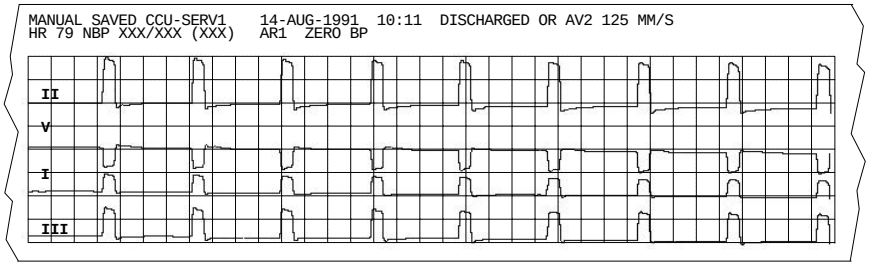
3.2.13. Reconnect the RA leadwire to the patient simulator.

3.2.14. Inject a 1-millivolt calibration signal using the patient simulator and start a manual graph.

3.2.15. Observe that the calibration pulse is properly displayed and graphed (see figure below).

NOTE: You may need to change the graph setup configuration in the Monitor Setup screen.

Typical graph showing patient simulator generated calibration pulses.



PMS (continued)

ECG test completion

3.2.16. Set the simulation back to 80 bpm. This completes the ECG tests. Continue to the next steps of this PMS procedure.

Respiration tests

3.3.1. With the ECG patient cable still connected to the ECG/RESP connector of the monitor, set up the patient simulator as follows:

Respiration (RESP) baseline impedance - 750Ω,

- RESP ΔR - 0. 5Ω,
- RESP lead select - I & II,
- RESP rate (respirations per minute) - 30.

NOTE: You may need to turn on the Respiratory Rate function within the Monitor Setup Screen - Parameters On/Off.

3.3.2. Set up the monitor as follows:

- RESP waveform - on,
- RESP waveform lead select - lead II (RESP waveform derived from ECG lead II).

3.3.3. Observe the following:

- RESP parameter window appears on the monitor with a reading of 30 ±2 (respirations per minute),
- RESP waveform appears distortion-free on the monitor.

3.3.4. Change the RESP waveform lead select of the monitor to lead I (RESP waveform derived from ECG lead I), and observe the following:

- RESP parameter window appears on the monitor with a reading of 30 ±2 (respirations per minute),
- RESP waveform appears distortion-free on the monitor.

Invasive blood pressure

The invasive blood pressure (BP) tests provide a method of verification for both BP connectors (BP1 and BP2) of a monitor equipped with this optional function. Follow these steps:

3.4.1. Set up the patient simulator as follows:

- Blood pressure (BP) polarity - POS.
- BP output - 0 mmHg.

BP1 connector (ART) tests

3.4.2. Connect the BP simulator cable from the BLOOD PRESSURE 1 - 120/80 connector of the patient simulator to the BP1 (left-most BP) connector of the monitor.

3.4.3. Verify the AR1 parameter window, waveform label, corresponding graticules, and waveform appear on the display, along with a BP waveform requiring zero reference.

3.4.4. Press the ZERO ALL push-button on the front panel of the monitor to zero-reference the AR1 BP waveform.

3.4.5. Change the patient simulator BP output to 200 mmHg.

3.4.6. Observe a reading of 200/200 (200) ± 4 mmHg in the AR1 parameter window on the monitor display.

3.4.7. Change the patient simulator BP output to WAVE (simulated BP waveform).

3.4.8. Set the AR1 BP waveform gain on the monitor to auto, in the IBP screen - Art Scales to Auto.

3.4.9. Observe a distortion-free AR1 BP waveform and a reading of approximately 120/80 (93) in the AR1 parameter window on the monitor display.

3.4.10. Remove the cable from the BP1 connector of the Eagle monitor and insert it into the BP2 connector.

3.4.11. Observe that a PA2 label and graticules appear on the Eagle monitor display.

3.4.12. Set the simulator to output 0 mmHg.

3.4.13. Zero the PA2 waveform.

3.4.14. Repeat steps 3.4.5 through 3.4.9 of this test.

PMS (continued)

Temperature tests

3.5.1. Set up the patient simulator for a temperature output of 37°C.

3.5.2. Attach the temperature adaptor cable to the TEMP/CO connector of the monitor.

3.5.3. Set the switch on the temperature adaptor to the 400 position.

3.5.4. Attach the temperature simulator cable from the SERIES 400 TEMPERATURE OUTPUT connector of the patient simulator to the T1 connector of the temperature adaptor.

3.5.5. Verify a TEMP parameter window appears on the monitor display with a T1 reading of 37.0° ±0.4° C.

3.5.6. Move the temperature simulator cable from the T1 connector of the temperature adaptor to the T2 connector of the temperature adaptor.

3.5.7. Verify a T2 reading of 37.0° ±0.4° C in the TEMP parameter window on the monitor display.

Temperature tests completion

3.5.8. Remove the temperature adaptor and temperature simulator cable from the monitor and patient simulator.

Cardiac output tests

3.6.1. Connect the cardiac output (CO) cable adaptor to the TEMP/CO connector of the monitor.

3.6.2. Connect a simulator cable between the CO cable adaptor and the CO simulator.

3.6.3. Set the CO simulator to output blood temperature (BT) readings, as found in the following table, and observe the correct readings on the monitor:

Simulator BT Setting	Monitor BT Reading Range
30.3°C	30.1 - 30.5
35.1°C	34.9 - 35.3
36.0°C	35.8 - 36.2
37.0°C	36.8 - 37.2
41.7°C	41.5 - 41.9

NOTE: Set both the BT and IT switches to the first setting so both values can be observed at the same time. Then set both switches to the second setting, and so on.

NOTE: You will need to enter the CO screen to observe both the BT and IT readings simultaneously.

3.6.4. Set the CO simulator to output injectate temperature (IT) readings, as found in the following table, and observe the correct readings on the monitor:

Simulator IT Setting	Monitor IT Reading Range
0.0°C	-0.3 - +0.3
8.0°C	7.7 - 8.3
15.0°C	14.7 - 15.3
24.0°C	23.7 - 24.3
29.6°C	29.3 - 29.9

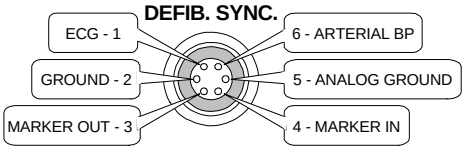
NOTE: Do not use waveform curve #4 setting of the CO simulator. Reference the CO II Simulator manual for details.

Cardiac output test completion

3.6.5. Disconnect the CO cable adaptor from the TEMP/CO connector of the monitor. This completes the CO tests.

PMS (continued)

Defibrillator synchronization tests



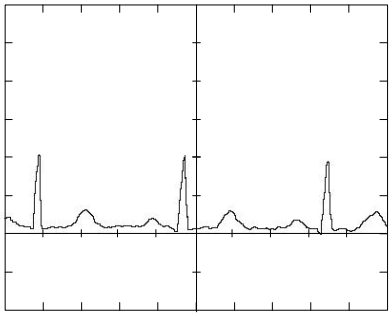
3.7.1. Use the figure at the left as a reference for connecting the oscilloscope to the DEFIB SYNC connector, located on the front panel of the monitor, for performing these tests.

3.7.2. Test the ECG, Arterial BP and Marker Out signals from the DEFIB SYNC connector. They should closely resemble the waveforms in the figures below. Note that there are two Marker Out traces shown below. The upper Marker Out figure references the frequency aspects of the signal. The lower Marker Out figure references the pulse width aspects of the signal.

NOTE: Reference the Fluke Graphical Multimeter's operator manual to get as close as possible to the stated settings. Measure waveform against the graticule.

DEFIB SYNC connector:
ECG

Signal Pin: 1
Ground Pin: 5
Time/Division: 0.2S
Volts/Division: 0.5V



Tips for Setting Up the Graphical Multimeter:

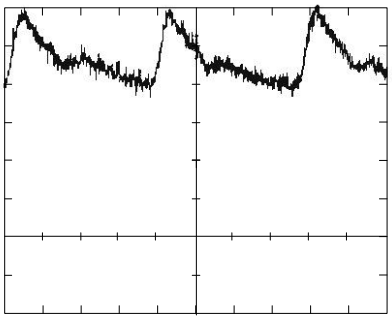
- Set the simulator ECG input to 80 bpm at 1 mV amplitude.
- Set meter to VAC scale.
- Select "display" gray hardkey.
- Select "view" blue key.
- Select "time base."
- Adjust "slower" or "faster" to obtain 200mS/div.
- Select "exit."
- Select "range" gray hardkey.
- Select "manual" blue key.
- Select "wave scale" until the "29" scale is displayed.
- Select increment and decrement keys to obtain the 290mV/div scale.
- Should measure approximately 3.5 blocks on graticule.
- Select exit. Go to next test.

Use the same manner as above to select the desired ranges for the successive tests.

PMS (continued)

DEFIB SYNC connector:
Arterial BP

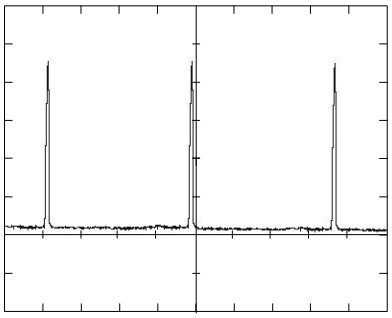
Signal Pin:	6
Ground Pin:	5
Time/Division:	0.2S
Volts/Division:	0.2V



NOTE: Set the simulator IBP input to 120/80 - WAVE.

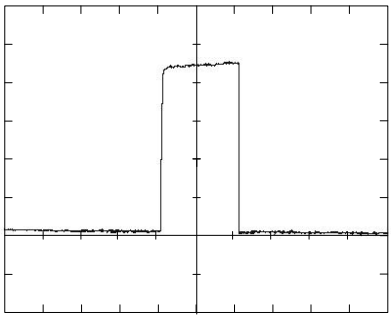
DEFIB SYNC connector:
Marker Out (frequency)

Signal Pin:	3
Ground Pin:	2
Time/Division:	0.2S
Volts/Division:	1V



DEFIB SYNC connector:
Marker Out (pulse width)

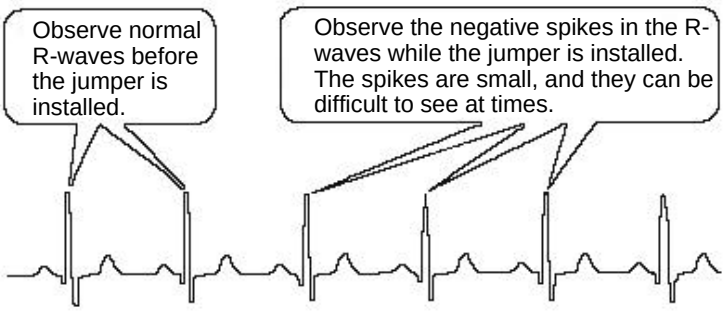
Signal Pin:	3
Ground Pin:	2
Time/Division:	5mS
Volts/Division:	1V



PMS (continued)

Defibrillator synchronization tests (Cont): Verify markers

3.7.3. Attach a jumper wire between pin-3 (Marker Out) and pin-4 tests (Marker In) of the DEFIB SYNC connector located on the front of the monitor. Verify negative spikes in each of the QRS Complex (ECG waveform) R-Waves on the monitor display, similar to those shown in the illustration below.



Defibrillator synchronization tests completion

3.7.4. Remove the jumper wire installed in the previous step, from the DEFIB SYNC connector. This completes the defibrillator synchronization tests.

Battery tests

3.8.1. Turn the power switch on the monitor's rear panel to the off (0) position and disconnect the power cord plug from the wall receptacle.

3.8.2. Verify the PWR-BATT front panel indicator illuminates. This indicates operation from monitor battery power.

3.8.3. Setup the patient simulator as follows:

- ECG heart rate - 80 bpm,
- ECG amplitude - 1.0 mV,
- 5-lead patient cable attached.

3.8.4. Observe the following:

- ECG Lead II is displayed and is noise-free,
- Heart rate of 80 ± 1 bpm is displayed,
- With QRS TONES enabled, an audible tone sounds with each R-Wave.

3.8.5. Verify all seven ECG leads are selectable for display on the monitor.

3.8.6. Connect the power cord plug to the wall receptacle and turn the power switch on the monitor's rear panel to the on (1) position.

3.8.7. Verify the PWR-AC front panel indicator illuminates. This indicates the monitor is operating from wall receptacle (AC) power.

3.8.8. Verify the BATT-CHRGNG front panel indicator illuminates for a few minutes. This indicates the monitor battery is charging.

3.8.9. Verify the BATT-RDY front panel indicator illuminates after a few minutes. This indicates the monitor battery has fully charged.

Speaker tests

3.9.1. Change the alarm volume of the monitor to 100%.

3.9.2. Verify the speaker volume of the monitor changes accordingly.

3.9.3. Return the volume of the monitor to the level it was previously set to, before you changed it for this test.

Safety Analysis Testing

Leakage current tests

Leakage current tests provide a method of determining potential electrical health hazard to the patient exist in the monitor. These tests generally are required by the National Fire Protection Agency (NFPA) as a part of National Electrical Code (NEC) guidelines for medical device electrical safety.

Manufacturer recommendation

It is recommended that these tests be performed upon receipt of the equipment and every 6 months thereafter.

WARNING: Failure to perform leakage current tests may cause undue equipment failure and potential health hazards to patients connected to the monitor. The manufacturer does not in any manner, unless an Equipment Maintenance Agreement exists, assume the responsibility for performing the leakage current tests. The sole responsibility rests with the individual or institution using the equipment. Manufacturer service representatives may, at their discretion, use this procedure as a helpful guide during visits to the equipment site.

Test conditions

Leakage current tests may be performed under normal ambient conditions of temperature, humidity, and pressure.

Surface continuity tests

The surface continuity test provides a method of checking the integrity of the monitor relative to proper internal and external electrical ground. This test determines whether the monitor has a power ground fault.

3.10.1.1. Turn off both the display and the monitor's AC switch. Then disconnect the monitor (unit under test) from the wall receptacle.

3.10.1.2. Connect the negative lead of a digital multimeter (DMM) to the ground pin of the unit under test's power cord plug.

3.10.1.3. Set the DMM to the milliohms (mΩ) range.

3.10.1.4. Connect the positive lead of the DMM to any exposed metal surface on the unit under test.

3.10.1.5. Read the resistance displayed on the DMM. If the resistance is higher than 100 mΩ, the unit under test fails this test and should be repaired and tested again.

NOTE: Subtract your lead resistance from your reading.

Ground wire leakage to ground tests

Perform this test to measure leakage current through the ground wire of the monitor during normal operation. Reference the Safety Analyzer operator manual.

3.10.2.1. Connect the power cord of the monitor to the power receptacle on the safety analyzer.

3.10.2.2. Set the safety analyzer power switch to ON.

3.10.2.3. Set the leakage tester switches as follows:

- GND switch - OPEN,
- Polarity switch - NORM.

3.10.2.4. Set the rear panel power switch of the monitor to ON.

3.10.2.5. Read leakage current indicated on safety analyzer. If the reading is greater than:

- 300 microamperes, and the monitor is operating at 115 V/60 Hz; or
- 500 µA, and the monitor is operating at 220 V/50 Hz;

the unit under test fails this test and should be repaired and tested again.

3.10.2.6. Set the polarity switch on the safety analyzer to RVS (reverse).

3.10.2.7. Read the leakage current indicated on the safety analyzer. If the reading is greater than:

- 300 µA, and the monitor is operating at 115 V/60 Hz; or
- 500 µA, and the monitor is operating at 220 V/50 Hz;

the unit under test fails this test and should be repaired and tested again.

3.10.2.8. Set the safety analyzer power switch to OFF.

PMS (continued)

Chassis leakage to ground tests

Perform this test to measure leakage current through the ground wire of the monitor during normal operation.

3.10.3.1. Connect a meter lead between the CHAS connector on the top of the safety analyzer and an unpainted, non-anodized chassis ground on the unit under test.

3.10.3.2. Set the safety analyzer power switch to ON.

3.10.3.3. Set the safety analyzer switches as follows:

- GND switch - OPEN,
- Polarity switch - NORM.

3.10.3.4. Read the leakage current indicated on the safety analyzer. If the reading is greater than:

- 100 µA, and the monitor is operating at 115 V/60 Hz; or
- 100 µA, and the monitor is operating at 230 V/50 Hz;

the unit under test fails this test and should be repaired and tested again.

3.10.3.5. Set the polarity switch to RVS and observe the same meter readings as in the previous step.

3.10.3.6. Set the GND switch on the safety analyzer to CLOSED.

3.10.3.7. Read the leakage current indicated on the safety analyzer. If the reading is greater than:

- 10 µA, and the monitor is operating at 115 V/60 Hz; or
- 20 µA, and the monitor is operating at 220 V/50 Hz;

the unit under test fails this test and should be repaired and tested again.

3.10.3.8. Set the polarity switch to RVS and observe the same meter readings as in the previous step.

3.10.3.9. Set the safety analyzer power switch to OFF and remove the meter lead connected in step 1.

Lead Isolation Factor

NOTE: Reference your Safety Analyzer operator manual for specific operations to perform these tests.

3.10.4.1. Connect the ECG cable leads to the safety analyzer, but do not connect the cable to the Eagle.

3.10.4.2. Set the safety analyzer to measure ECG leakage current.

3.10.4.3. Select for all leads to be tested.

CAUTION: During this testing, DO NOT touch the ECG posts.

3.10.4.4. Press and hold the ISOLATION key.

3.10.4.5. Record the reading from the display (referred to as the Lead Isolation Factor) on the test report.

3.10.4.6. Release the ISOLATION key.

Patient source leakage tests

This test checks leakage current from the ECG/RESP connector of the monitor relative to ground.

3.10.5.1. Connect the ECG cable to the ECG/RESP connector of the monitor.

3.10.5.2. Set the safety analyzer power switch to ON.

3.10.5.3. Set safety analyzer switches as follows:

- GND switch - GND OPEN,
- Polarity switch - NORM.

3.10.5.4. Set the rear panel power switch of the monitor to ON.

3.10.5.5. Read the leakage current indicated on the safety analyzer.

- If the reading is greater than 10 µA, the unit under test fails this test and should be repaired and tested again.

3.10.5.6. Change the safety analyzer polarity switch to the RVS position.

PMS (continued)

3.10.5.7. Read the leakage current indicated on the safety analyzer.

- If the reading is greater than 10 µA, the unit under test fails this test and should be repaired and tested again.

3.10.5.8. Change the GND switch to the CLOSED position.

3.10.5.9. Read the leakage current indicated on the DMM.

- If the reading is greater than 10 µA, the unit under test fails this test and should be repaired and tested again.

3.10.5.10. Change the leakage tester polarity switch to the RVS position.

3.10.5.11. Read the leakage current indicated on the safety analyzer.

- If the reading is greater than 10 µA, the unit under test fails this test and should be repaired and tested again.

3.10.5.12. Set the power switch of the safety analyzer to OFF, and turn the monitor display to OFF.

Patient sink leakage tests

This tests patient cable leakage current from a 115 or 220 V_{ac} source into the ECG/RESP connector of the monitor.

3.10.6.1. Set power switch on the safety analyzer to ON.

3.10.6.2. Set the safety analyzer switches as follows:

- GND switch - CLOSED,
- Polarity switch - NORM,
- Select ECG leakage (all leads).

WARNING: The following step will cause high voltage (115 or 220 V_{ac}) to appear at the ECG JACK on the safety analyzer. Do not touch the ECG Jack posts or ECG lead clips during this test as an electrical shock will occur.

3.10.6.3. Press and hold the ISOLATION key. Subtract the lead isolation factor recorded earlier from this value. Read leakage current indicated on safety analyzer. Release the ISOLATION key.

If the reading is greater than:

- 10 µA and the monitor is operating at 115 V/60 Hz; or
- 17 µA and the monitor is operating at 220 V/50 Hz;

the unit under test fails this test and should be repaired and tested again.

3.10.6.4. Change the safety analyzer polarity switch to the RVS position.

3.10.6.5. Press and hold the ISOLATION key. Subtract the lead isolation factor recorded earlier from this value. Read the leakage current indicated on the safety analyzer. Release the ISOLATION key.

If the reading is greater than:

- 10 µA and the monitor is operating at 115 V/60 Hz; or
- 17 µA and the monitor is operating at 220 V/50 Hz;

the unit under test fails this test and should be repaired and tested again.

3.10.6.6. Set the power switch on the safety analyzer to OFF.

Leakage current tests completion

Disconnect all test equipment from the monitor. Disconnect the monitor power cord plug from the safety analyzer power receptacle. Disconnect the safety analyzer from the wall receptacle. Plug the monitor's power plug back into the machine.

Setup and Configuration

3.11.1. Verify the configuration on the host machine to be correct.

3.11.2. Verify the time and date are set correctly.

Serial Data Port

3.12.1. Verify data is being transmitted to the host machine.

Notes

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(800) 543-5047
(215) 723-5935 FAX

EAGLE Monitoring Systems

The information recorded within this block must match the information on the label applied to the back of the machine.

P.M.S. Date _____
P.M.S. Time _____
Next Due _____
Signature _____

INSTITUTION _____ SOFTWARE VERSION NUMBER _____
ADDRESS _____ MACHINE SERIAL NUMBER _____
CITY _____ STATE ___ ZIP _____ ROOM NO. _____
TELEPHONE ( ) _____ P.O. NUMBER _____

PERIODIC MANUFACTURER'S SERVICE CHECK LIST (Refer to Service Manual)

☐ Verify test equip cal dates

GENERAL TEST
☐ 3.1.5 LED's illuminate with AC applied
☐ 3.1.6 RDY indicator lites

ECG TEST
☐ 3.2.4 ECG lead II displayed
☐ Heart rate 80 +/- 1 bpm
☐ Qrs tones on & sound w/each cmplx
☐ 3.2.5 All seven ECG displayed noise free
☐ 3.2.8 P displayed at pacemaker mark
☐ Heart rate 80 +/- 1bpm
☐ 3.2.12 RA fail message appears
☐ Lead III displayed
☐ 3.2.15 Calibration pulse displayed & graphed

RESP TEST
☐ 3.3.3 Lead II distortion free
☐ RR 30 +/- Lead II
☐ 3.3.4 Lead I distortion free
☐ RR 30 +/- 2 Lead I

IBP TEST
☐ 3.4.3 AR1 label & graticules displayed
☐ 3.4.6 200/200 +/- 4
☐ 3.4.9 120/80 mean 93
☐ 3.4.11 PA2 label and graticules displayed
☐ 3.4.6 200/200 +/- 4
☐ 3.4.9 120/80 mean 93

TEMP TEST
☐ 3.5.5 T1 Reading 37 +/- .4
☐ 3.5.7 T2 Reading 37 +/- .4

CO TEST
☐ Blood temp readings
☐ 3.6.3 Simulator BT setting reading
☐ 30.3° C 30.1-30.5 ____
☐ 35.1° C 34.9-35.3 ____
☐ 36.0° C 35.8-36.2 ____
☐ 37.0° C 36.8-37.2 ____
☐ 41.7° C 41.5-41.9 ____
☐ 3.6.4 Simulator IT setting reading
☐ 0° C -0.3-+0.3 ____
☐ 8.0° C 7.7-8.3 ____
☐ 15.0° C 14.7-15.3 ____
☐ 24.0° C 23.7-24.3 ____
☐ 29.6° C 29.3-29.9 ____

DEFIB SYNC TEST
☐ 3.7.2 4 signals present
☐ ECG
☐ Arterial BP
☐ Marker out
☐ Marker out
☐ 3.7.3 Neg R wave spikes

BATTERY/TRANSPORT TEST
☐ 3.8.2 PWR BATT indicator on
☐ 3.8.4 ECG Lead II displayed
☐ HR 80 +/- 1
☐ QRS tones
☐ 3.8.5 Seven leads available
☐ 3.8.7 AC indicator on
☐ 3.8.8 CHRGNG indicator on
☐ 3.8.9 READY indicator on

SPEAKER TEST
☐ 3.9.2 Speaker volume changes

SAFETY TESTING
Surface Continuity Test
☐ 3.10.1.5 ___ mohms
Ground Wire Leakage Test
☐ 3.10.2.5 Open gnd norm pol ___ µA
☐ 3.10.2.7 Open gnd rev pol ___ µA
Chassis Leakage Test
☐ 3.10.3.4 Open gnd norm pol ___ µA
☐ 3.10.3.5 Open gnd rev pol ___ µA
☐ 3.10.3.7 Norm gnd rev pol ___ µA
☐ 3.10.3.8 Norm gnd norm pol ___ µA
Lead Isolation Factor
☐ 3.10.4.5 Lead isolation factor ___ µA
Patient Source Test
☐ 3.10.5.5 Open gnd norm pol ___ µA
☐ 3.10.5.7 Open gnd rev pol ___ µA
☐ 3.10.5.9 Norm gnd rev pol ___ µA
☐ 3.10.5.11 Norm gnd norm pol ___ µA
Patient Sink Test
☐ 3.10.6.3 Norm gnd norm pol ___ µA
☐ 3.10.6.5 Norm gnd rev pol ___ µA
Setup and Configuration
☐ 3.11.1. Comm configure
☐ 3.11.2. Time/date
Serial Data Port
☐ 3.12.1. Comm verification
☐ Accessory Attachment
☐ Visual Inspection
☐ Operator Manual

		RECOMMENDED FOR USE YES	NO	COMMENTS
ELECTRONIC MONITORS	ECG MONITOR			
	RESP MONITOR			
	IBP MONITOR			
	TEMP MONITOR			
	CO MONITOR			

REPLACEMENT PARTS	PARTS DESCRIPTION	WHSE	PART NUMBER	QTY	C/C S/N	PARTS DESCRIPTION	WHSE	PART NUMBER	QTY	C/C S/N

RECOMMENDATIONS / GENERAL COMMENTS				
	Technical Service Representative Signature	I.D. No.	Customer Signature	Date

NORTH AMERICAN DRÄGER

Quality Service For Life®

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Part Number: SP00160

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